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ABSTRACT

The 1998 NAEP (National Assessment of Educational Progress) state level reading assessment measured fourth- and eighth-grade students' reading proficiency in situations that involved reading for three purposes: reading for literary experience, reading to gain information, and reading to perform a task (grade 8 only). This report describes the reading proficiency of Michigan fourth-grade public and nonpublic school students and compares their overall performance to students in the Central region of the United States and the nation (using data from the NAEP national assessments). Michigan participated in the 1998 NAEP reading assessment at the fourth grade only. The distribution of reading results and reading achievement level results are provided for subpopulations of students (gender, race/ethnicity, students' reports of parents' highest educational level, free/reduced-price lunch program eligibility, and type of location). The average reading proficiency of fourth-grade public school students in Michigan on the NAEP scale was 217 compared to 215 nationwide and 235 compared to 233 nationwide for fourth-grade nonpublic school students. (RS)

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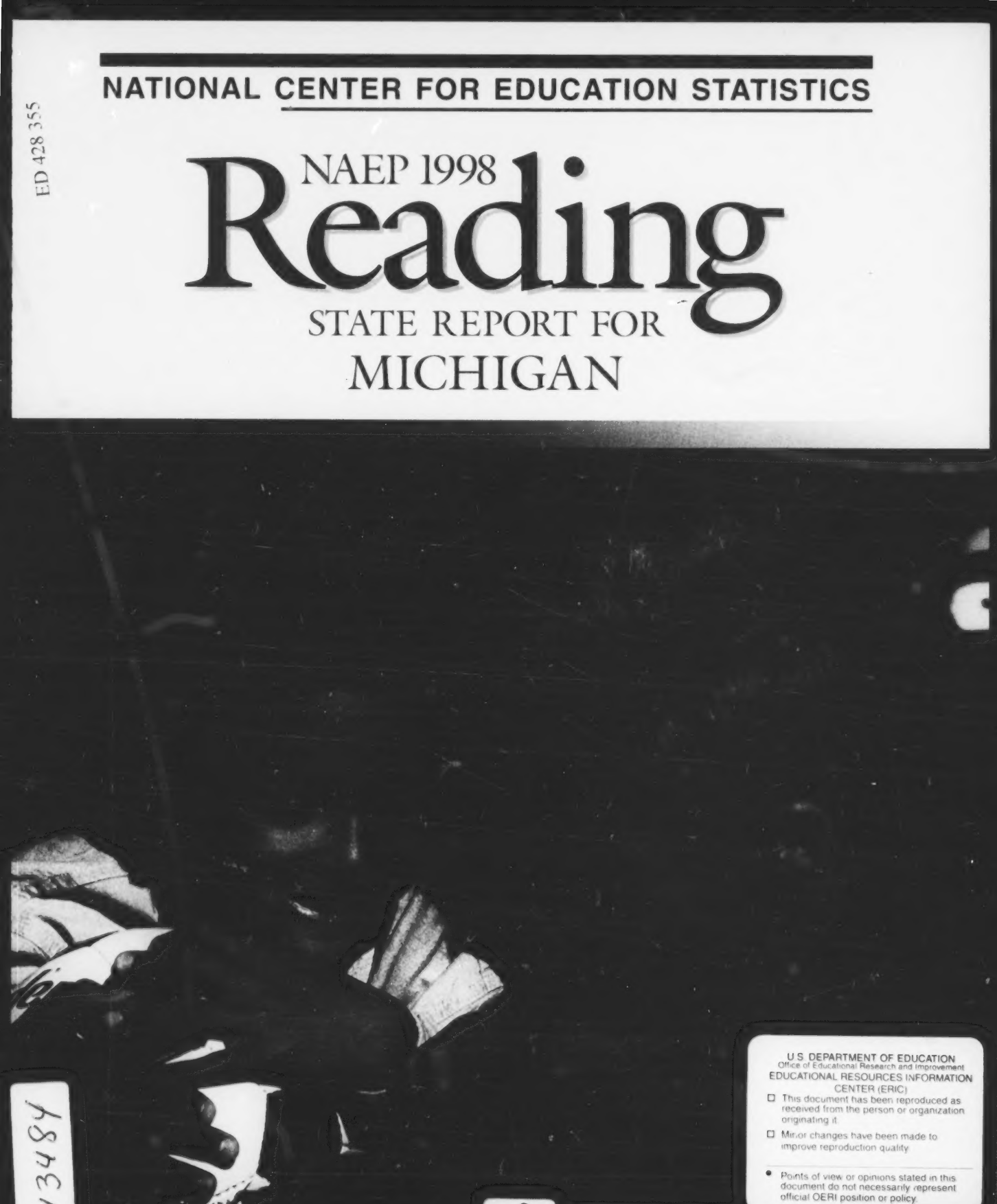

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What is The Nation's Report Card?

THE NATION'S REPORT CARD, the National Assessment of Educational Progress (NAEP), is the only nationally representative and continuing assessment of what America's students know and can do in various subject areas. Since 1969, assessments have been conducted periodically in reading, mathematics, science, writing, history, geography, and other fields. By making objective information on student performance available to policymakers at the national, state, and local levels, NAEP is an integral part of our nation's evaluation of the condition and progress of education. Only information related to academic achievement is collected under this program. NAEP guarantees the privacy of individual students and their families.

NAEP is a congressionally mandated project of the National Center for Education Statistics, the U.S. Department of Education. The Commissioner of Education Statistics is responsible, by law, for carrying out the NAEP project through competitive awards to qualified organizations. NAEP reports directly to the Commissioner, who is also responsible for providing continuing reviews, including validation studies and solicitation of public comment, on NAEP's conduct and usefulness.

In 1988, Congress established the National Assessment Governing Board (NAGB) to formulate policy guidelines for NAEP. The Board is responsible for selecting the subject areas to be assessed from among those included in the National Education Goals; for setting appropriate student performance levels; for developing assessment objectives and test specifications through a national consensus approach; for designing the assessment methodology; for developing guidelines for reporting and disseminating NAEP results; for developing standards and procedures for interstate, regional, and national comparisons; for determining the appropriateness of test items and ensuring they are free from bias; and for taking actions to improve the form and use of the National Assessment.

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STATE REPORT FOR MICHIGAN

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March 1999

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SECTION 1 Overview of the NAEP Reading Assessment

What Is NAEP?

The National Assessment of Educational Progress (NAEP) is the only nationally representative and continuing assessment of what students in the United States know and can do in various academic subjects. NAEP is authorized by Congress and directed by the National Center for Education Statistics (NCES). The National Assessment Governing Board (NAGB), an independent body, provides policy guidance for NAEP. The NAEP assessments are administered to representative samples of students at the national level as well as at the state level for those states that want to participate. To ensure comparability in a particular subject across all jurisdictions, NCES has established guidelines for school and student participation rates. These guidelines, as well as other technical aspects of the assessment, are detailed in the *NAEP 1998 Reading Report Card*.[1]

The 1998 NAEP program included state-level assessments in reading at grades 4 and 8 and in writing at grade 8, and national-level assessments in civics, reading, and writing at grades 4, 8, and 12. This report and its companion, the *NAEP 1998 Reading Report Card*, provide a first look at the results of the NAEP 1998 reading assessment. The *Reading Report Card* offers additional state-level data. Each participating jurisdiction receives its own customized *State Report* identical in format to this one. Summary data tables providing information for all jurisdictions for which results are reported in 1998 are available at http://nces.ed.gov/naep/, the NAEP Web site.

What Is Reported Here?

The NAEP reading assessment has been administered at the state level three times: in public schools at grade 4 in 1992, in public and nonpublic schools at grade 4 in 1994, and in public and nonpublic schools at grades 4 and 8 in 1998. Michigan participated in the 1998 NAEP reading assessment at grade 4 only. Both public and nonpublic schools participated. Michigan's public schools also participated in the NAEP reading assessments in 1992 and 1994. In 1994, however, minimum participation guidelines for publication were not met. Michigan's grade 4 public school results for 1992 and 1998 and nonpublic school results for 1998 are presented here, along with national and regional results for comparison.

This report has two sections. This **Overview** provides basic information on NAEP and the overall results for public schools in graphic form. It describes the assessment, the sample of students assessed, the metrics for reporting student performance, and how the differences in performance are reported. The second section, **Overall Reading Performance and Performance by Demographic Characteristics**, reports findings for the entire public school population at grade 4 as well as for the population broken out by major demographic categories and school type. This information is presented in data tables.

[1] Donahue, P. L., Voelkl, K. E., Campbell, J. R., and Mazzeo, J. (1999). *The NAEP 1998 reading report card for the nation and the states* (NCES Publication No. 1999-500). Washington, DC: National Center for Education Statistics.

In addition, this report has two appendices. Appendix A, **Where to Find More Information**, describes the data available on the Web and provides information on sources of related data. Appendix B, **Figures from Section 1**, displays full-page replicas of Figures 1–4.

The demographic data provided in this report are only a small portion of the data available from the several hundred questions asked of students, teachers, and school principals in order to provide context for NAEP results. Overall results for all student and school variables for public school students in each participating jurisdiction are available in summary data tables at the NAEP Web site.

How Are Results Reported?

In this report, as in other NAEP reports, only those results based on preestablished minimum sample sizes are reported. For details, see the forthcoming *NAEP 1998 Technical Report*. The results are reported in terms of two metrics, descriptions of which follow and details of which can be found in the *Reading Report Card*.

- **Average NAEP reading scale scores** are reported for all students or for subgroups of students.
- **Percentages of students in each achievement level**; that is, the students' scale scores place them into three categories: at or above the *Basic* level, at or above the *Proficient* level, and at the *Advanced* level. Also reported are the percentages of students whose scores are below the *Basic* level.

The bulleted statements in the text as well as the symbols in the tables are based on the results of statistical tests of the data. The reader is cautioned to rely on the results of these statistical tests rather than on the apparent magnitude of any difference in scale scores or percentages in making inferences from the data.

The NAEP Reading Scale

Students' responses to the NAEP 1998 reading assessment were analyzed to determine the percentages of students responding correctly to each multiple-choice question or in each of several score categories for constructed-response questions (requiring a short or long written answer). Three scales were developed, one for each of the three purposes for reading: *reading for literary experience; reading to gain information*; and *reading to perform a task* (grades 8 and 12 only). The purposes for reading are described fully in the companion *Reading Report Card* and in the *Reading Framework for the National Assessment of Educational Progress*,[2] both available on the Web (see Appendix A). Student performance by each of the purposes for reading appears in the percentile data tables at the NAEP Web site. The scales summarize results across all three grades. The scale for each of the purposes for reading ranges from 0 to 500 and is linked to its corresponding scale from 1992 and 1994. An overall composite scale was developed by weighting each of the three subscales based on its relative importance in the NAEP reading framework. This composite scale is the metric used to present the average scale scores and selected percentiles in this and other reports.

[2] National Assessment Governing Board. (1993). *Reading framework for the National Assessment of Educational Progress: 1992-1998*. Washington, DC: Author.

The Reading Achievement Levels

In addition to the NAEP reading scale, results are also reported in terms of the reading achievement levels authorized by the NAEP legislation[3] and adopted by the National Assessment Governing Board. The achievement levels are performance standards based on the collective judgments about what students should be expected to know and to do. Viewing students' performance from this perspective provides some insight into the adequacy of students' knowledge and skills and the extent to which they achieved expected levels of performance. The Board reviewed and adopted the recommended achievement levels derived from the judgments of a broadly representative panel that included teachers, education specialists, and members of the general public.

For each grade tested, the Board has adopted three achievement levels: *Basic*, *Proficient*, and *Advanced*. For reporting purposes, the achievement level cut scores for each grade represent the boundaries between four ranges on the NAEP reading scale: below *Basic*, *Basic*, *Proficient*, and *Advanced*. The policy definitions of the achievement levels are shown below. The text of the descriptions of expected reading performance at each achievement level at grades 4 and 8 can be found under the heading **What Should Students Be Able to Do?** later in this section. The cut scores that divide the achievement levels can be found in the footnotes of the tables in Section 2.

Definitions of the achievement levels

Basic	Partial mastery of prerequisite knowledge and skills that are fundamental for proficient work at each grade
Proficient	Solid academic performance for each grade assessed. Students reaching this level have demonstrated competency over challenging subject matter, including subject-matter knowledge, application of such knowledge to real-world situations, and analytical skills appropriate to the subject matter.
Advanced	Superior performance

The NAEP legislation requires that the achievement levels be used on a developmental basis until the Commissioner of Education Statistics determines, as the result of a congressionally mandated evaluation by one or more nationally recognized evaluation organizations, that the achievement levels are "reasonable, valid, and informative to the public." Upon review of the available information, the Commissioner of Education Statistics agrees with the National Academy's recommendation that caution needs to be exercised in the use of the current achievement levels, since in the opinion of the Academy "... appropriate validity evidence for the cut scores is lacking; and the process has produced unreasonable results."[4] Therefore, the Commissioner concludes that these achievement levels should continue to be considered developmental and should continue to be interpreted and used with caution. The *Reading Report Card* contains further information on the developmental status of the achievement levels. The Commissioner and the Governing Board believe that the achievement levels are useful for reporting trends in the educational achievement of students in the United States.

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[3] The National Education Statistics Act of 1994 requires that the National Assessment Governing Board develop "appropriate student performance levels" for reporting NAEP results.

[4] Pelligrino, J. W., Jones, L. R., and Mitchell, K. J. (Eds.). (1999). *Grading the nation's report card: Evaluating NAEP and transforming the assessment of educational progress* (p. 182). Committee on the Evaluation of the National and State Assessments of Educational Progress, Board on Testing and Assessment, Commission on Behavioral and Social Sciences and Education, National Research Council. Washington, DC: National Academy Press.

Reading Scale Score Results for Public School Students

Figure 1 on the following page shows graphically Michigan's performance in terms of average scale scores as compared to that of the Central region and the nation. Note that only a small portion of the NAEP reading scale, which actually ranges from 0 to 500, is represented on the vertical axis.

Public School Students, Grade 4

- In 1998, the average reading scale score of students in Michigan was 217. This did not differ significantly from that of students across the nation (215).
- In Michigan, the average scale score of students was not significantly different in 1998 (217) from that in 1992 (216). Similarly, the average scale score of fourth graders across the nation was not significantly different in 1998 (215) from that in 1992 (215).

The bulleted statements above give only a few of the assessment's findings. Complete notations of significant differences in overall performance for 1992 as compared to 1998 can be found in Table 1A in Section 2. Note that the changes indicated between two particular years show differences in performance between two distinct points in time and are not meant to indicate a general trend through the intervening years. Additional information can be found in the *NAEP 1998 Reading Report Card* and on the NAEP Web site.

How to read Figure 1

The vertical bars in Figure 1 show reading scores at grade 4 for 1992, 1994, and 1998, and at grade 8 for 1998, along only a portion of the NAEP 0–500 reading scale. The NAEP reading scale is a cross-grade scale (that is, it covers all three grades), so the difference between the performance of fourth graders and eighth graders can be observed. The reader must be sure to look at the actual scores (on top of the bars) rather than at the comparative heights of the bars when comparing performance for the two grades. (Table 1A in Section 2 also shows these scores, their associated standard errors, and the scores' distribution at selected percentiles.)

Michigan's overall average scale score is followed by those for the Central region and for the nation. The regional and national data come from the national sample, which is a different sample from that providing the state data. However, through linking procedures, state and national reading results are placed on the same scale.

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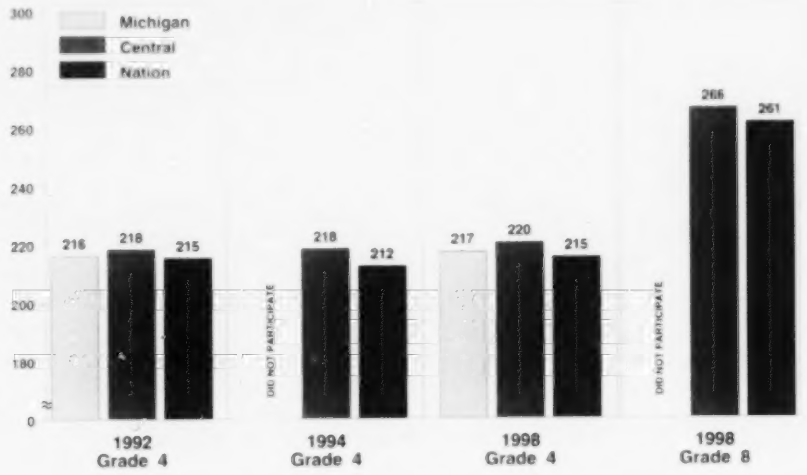
FIGURE 1

Average reading scale scores for public school students at grades 4 and 8



SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1992, 1994, and 1998 Reading Assessments.

Achievement Level Results for Public School Students

Figure 2 on the following page shows graphically Michigan's performance in terms of achievement levels (see page 3 for a description) as compared to that of the Central region and the nation.

Public School Students, Grade 4

- In 1998, the percentage of Michigan students who performed at or above the *Proficient* level was 28 percent. This percentage did not differ significantly from the percentage of the nation's students who performed at the same level (29 percent).
- The percentage of students performing at or above the *Proficient* level in Michigan did not differ significantly in 1998 (28 percent) from that in 1992 (26 percent).

The bulleted statements above give only a few of the assessment's findings. Complete notations of significant changes in overall performance for 1992 as compared with 1998 can be found in Table 1B in Section 2.

How to read Figure 2

Figure 2 shows the percentages of fourth- and eighth-grade students whose scores on the NAEP reading assessment placed them into each of the three achievement levels, or into the range below the *Basic* achievement level. In order to place students in the achievement level categories, scale score cutpoints were set for each level at each grade in 1992, the first year of the assessment. The process of determining the achievement levels is under development; thus, they should be used and interpreted with caution. The *Introduction* to the *NAEP 1998 Reading Report Card* contains further information on the developmental status of achievement levels.

To assist comparisons of performance across the years or comparisons at the state, regional, and national levels, the bars are centered between the top of the *Basic* category and the beginning of the *Proficient* category. There is a vertical line representing 0 percent through this location. A visual comparison of the percentages of students performing at or above the *Proficient* level in the jurisdiction and the nation can be made by comparing the extension of the bars to the right of the zero axis.

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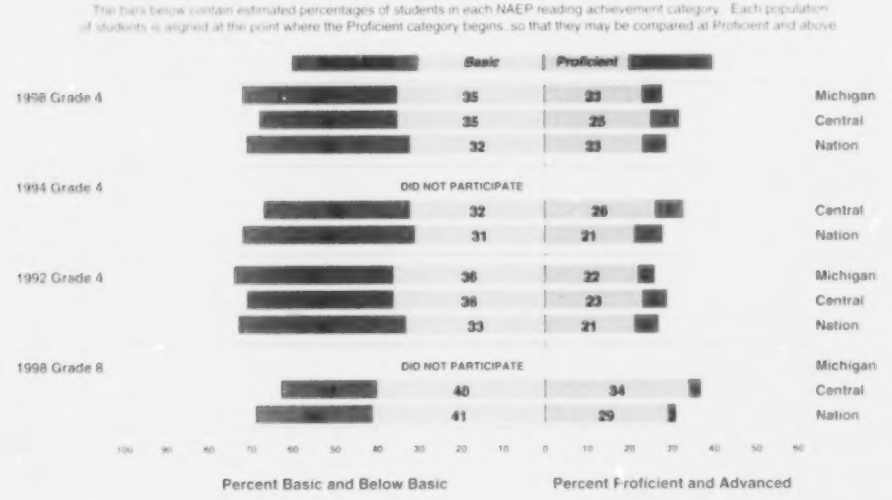
FIGURE 2

Reading achievement level results for public school students at grades 4 and 8



SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1992, 1994, and 1998 Reading Assessments.

The text and tables in this report refer to the percentage of students who score "at or above *Proficient*" and "at or above *Basic*." These percentages are cumulative. For instance, in Table 1B in Section 2, "at or above *Proficient*" appears as a single percentage. In order to compare the percentage in Figures 2 and 4 with that in Table 1B, the percentage appearing in the *Proficient* band in the figures must be added to the percentage in the *Advanced* band to obtain the percentage of students whose scores categorize them as "at or above *Proficient*." Similarly, the sum of the percentages appearing in the *Basic*, *Proficient*, and *Advanced* bands yields the percentage of students "at or above *Basic*."

Figures 2 and 4 allow one to compare performance by the total percentage of a given student population whose scores put the students in the broad category "at or above *Proficient*" (that is, simply comparing bar lengths to the right of the zero axis). Other interesting comparisons might consider the components of the bar lengths. For instance, one student population with 40 percent of its members performing at or above *Proficient* could have 35 percent at *Proficient* and 5 percent at *Advanced*. Another student population, also with 40 percent of its members performing at or above *Proficient*, might have 25 percent at *Proficient* and 15 percent at *Advanced*. In a similar manner, on the left side of the zero axis, much can be gained by comparing the percentage of students performing at the *Basic* level with the percentage below the *Basic* level.

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Comparisons Between Michigan and Other Participating Jurisdictions

In 1998, 45 states and other jurisdictions participated in the reading assessment. Of those, 43 at grade 4 and 40 at grade 8 met statistical reporting requirements for publishing their public school students' performance on the NAEP reading assessment. The map in Figure 3 shows the participating states and indicates their membership in four U.S. geographic regions. Note that the Virgin Islands and the domestic and overseas Department of Defense Education Activity schools (DoDEA/DDESS and DoDEA/DoDDS) do not belong to any of these regions. Reading results for all participating states and other jurisdictions are available at the NAEP Web site.

Average scale scores: How to read Figure 3

Figure 3 presents a map comparing Michigan's overall 1998 grade 4 reading scale scores with those of all other participating states and jurisdictions. The different shadings are determined by whether or not Michigan's average scale score is significantly different (in a statistical sense) from that of each of the other participants in the 1998 NAEP state reading assessment. States that did not participate in 1998, or that did not meet reporting guidelines, are also represented in the map.

Achievement levels: How to read Figure 4

Figure 4 permits comparisons of all participants in the NAEP state assessment, in terms of percentages of public school students performing at or above the *Proficient* level as well as those performing at the *Basic* level and below. As with Figure 3, the participating jurisdictions are arranged into categories reflecting student performance compared to that in Michigan. The jurisdictions are grouped by whether the percentage of their students with scores at or above the *Proficient* level (including *Advanced*) was higher than, not significantly different from, or lower than the percentage in Michigan. Note that the arrangement of the states and other jurisdictions within each category is alphabetical; statistical comparisons among the jurisdictions in each of the three groups are not included here.

This figure is available in color at the NAEP Web site. In the companion *Reading Report Card*, there are additional data tables as well as multiple comparison charts permitting comparison of each participating jurisdiction with all others.

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FIGURE 3

Michigan's 1998 average reading scale score compared to those for other participating jurisdictions for public school students at grade 4

GRADE 4

Differences between states and other jurisdictions may be partially explained by other factors not included in this figure.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Reading Assessment.

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FIGURE 4

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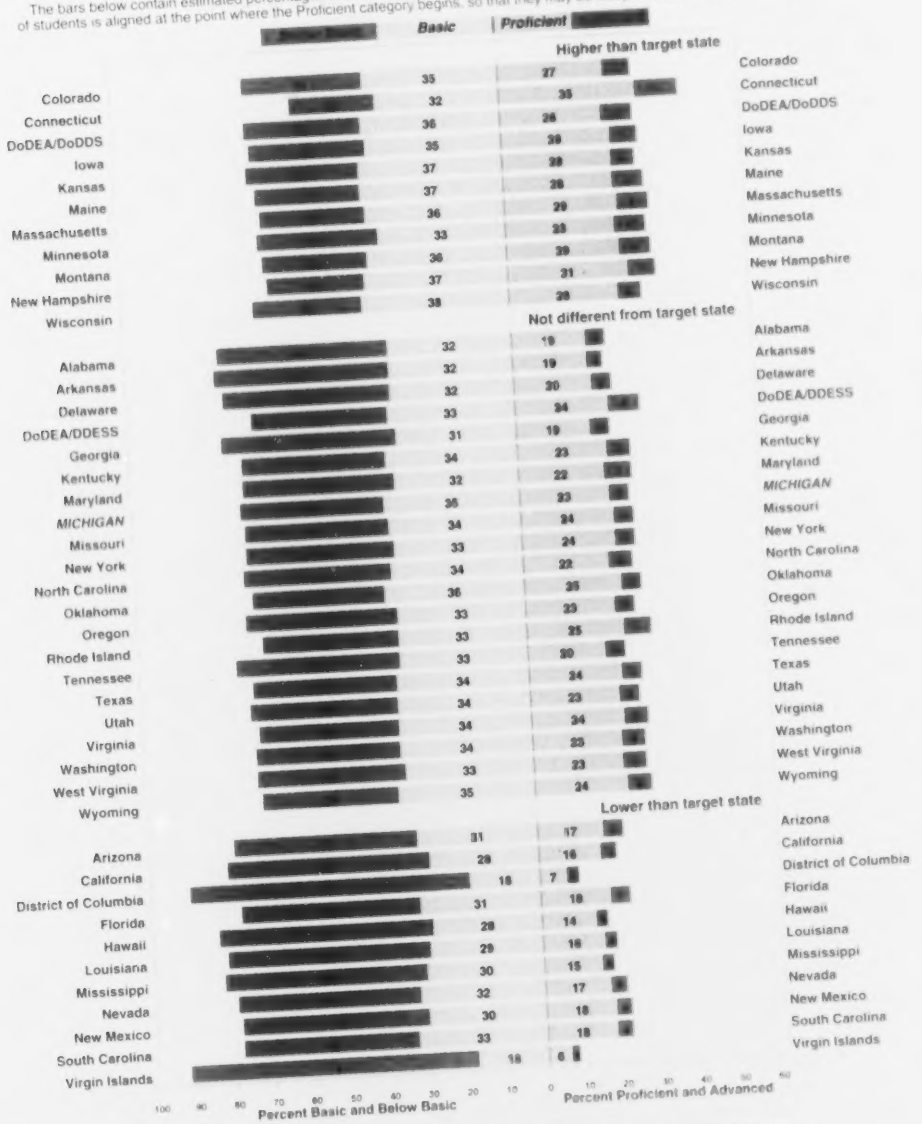
Achievement levels for reading: Comparing the percentage of public school students at or above the Proficient level in Michigan with those in other participating jurisdictions at grade 4 in 1998

The bars below contain estimated percentages of students in each NAEP reading achievement category. Each population of students is aligned at the point where the Proficient category begins, so that they may be compared at Proficient and above.



Differences between states and other jurisdictions may be partially explained by other factors not included in this figure.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Reading Assessment.

What Was Assessed?

The subject area content for each NAEP assessment is developed through a congressionally mandated national consensus process directed by the National Assessment Governing Board (NAGB). The objectives for each NAEP assessment are described in a framework document that delineates the important content and process areas to be measured, as well as the types of exercises to be included in the assessment.

The *Reading Framework* for the 1992 and 1994 NAEP reading assessments also guided the 1998 reading assessment. This framework was developed under the auspices of the Council of Chief State School Officers (CCSSO). Reflecting current theories of reading, the *Reading Framework* describes reading as a complex interaction among the reader, the text, and the context of the reading situation. According to this interactive view of reading, readers use different strategies and processes depending on the type of text being read and the purposes for reading it.

The framework specifies that students be assessed in reading for three different purposes: *reading for literary experience*, *reading to gain information*, and *reading to perform a task*. The last purpose is not assessed at grade 4. In order to measure students' abilities to read for different purposes, the assessment is composed of three different types of texts, each associated with one purpose for reading.

While responding to text, readers take different approaches in order to understand what is being read. The comprehension process typically involves changing stances, or orientations toward the text. The framework describes four reading stances: *initial understanding*, *developing an interpretation*, *personal response*, and *critical stance*. These stances are not intended to represent a sequential routine of reading abilities nor are they considered hierarchical; rather, they describe reading processes that all readers use at any level of development.

The assessment contains reading materials that were drawn from sources commonly available to students in and out of school. These authentic materials were considered to be representative of the types of reading experiences typically encountered by students. Each student in the state assessment was asked to complete two 25-minute blocks, each consisting of a reading passage and associated comprehension questions at the appropriate grade level. A combination of multiple-choice and constructed-response questions was used to assess students' understanding of the passages. The passages and associated items followed a distribution specified by the framework.

Distribution of items by purpose for reading as specified by the Reading Framework

Purpose	Grade 4	Grade 8
For literary experience	55%	40%
To gain information	45%	40%
To perform a task	(none)	20%

What Should Students Be Able to Do?

The following grade-specific achievement level descriptions focus on the interaction of the reader, the text, and the context. The achievement level descriptions reflect what readers performing at each achievement level should be able to do. The achievement levels are cumulative from *Basic* to *Proficient* to *Advanced*. Each level builds on the previous level such that knowledge at the *Proficient* level presumes mastery of the *Basic* level, and knowledge at the *Advanced* level presumes mastery of both the *Basic* and *Proficient* levels.

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FIGURE 5A

Levels of Reading Achievement at Grade 4

BASIC LEVEL (208)	Fourth-grade students performing at the Basic level should demonstrate an understanding of the overall meaning of what they read. When reading text appropriate for fourth graders, they should be able to make relatively obvious connections between the text and their own experiences and extend the ideas in the text by making simple inferences.
PROFICIENT LEVEL (238)	Fourth-grade students performing at the Proficient level should be able to demonstrate an overall understanding of the text, providing inferential as well as literal information. When reading text appropriate to fourth grade, they should be able to extend the ideas in the text by making inferences, drawing conclusions, and making connections to their own experiences. The connection between the text and what the student infers should be clear.
ADVANCED LEVEL (268)	Fourth-grade students performing at the Advanced level should be able to generalize about topics in the reading selection and demonstrate an awareness of how authors compose and use literary devices. When reading text appropriate to fourth grade, they should be able to judge text critically and, in general, give thorough answers that indicate careful thought.

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FIGURE 5B

Levels of Reading Achievement at Grade 8

BASIC LEVEL (243)	Eighth-grade students performing at the Basic level should demonstrate a literal understanding of what they read and be able to make some interpretations. When reading text appropriate to eighth grade, they should be able to identify specific aspects of the text that reflect the overall meaning, extend the ideas in the text by making simple inferences, recognize and relate interpretations and connections among ideas in the text to personal experience, and draw conclusions based on the text.
PROFICIENT LEVEL (281)	Eighth-grade students performing at the Proficient level should be able to show an overall understanding of the text, including inferential as well as literal information. When reading text appropriate to eighth grade, they should be able to extend the ideas in the text by making clear inferences from it, by drawing conclusions, and by making connections to their own experiences—including other reading experiences. Proficient eighth graders should be able to identify some of the devices authors use in composing text.
ADVANCED LEVEL (323)	Eighth-grade students performing at the Advanced level should be able to describe the more abstract themes and ideas of the overall text. When reading text appropriate to eighth grade, they should be able to analyze both meaning and form and support their analyses explicitly with examples from the text; they should be able to extend text information by relating it to their experiences and to world events. At this level, student responses should be thorough, thoughtful, and extensive.

Who Was Assessed?

Selection of Schools and Students

For the NAEP state assessment, participating schools within a given jurisdiction, and students in those schools, were selected using probability sampling methods. These methods are described in the *NAEP 1998 Reading Report Card*.

Michigan's Participation

The overall participation rate for schools and students must meet guidelines established by NCES and NAGB in order for assessment results to be reported publicly. The NAEP state assessment in reading was administered in public schools at grade 4 in 1992, in public and nonpublic schools at grade 4 in 1994, and in public and nonpublic schools at grades 4 and 8 in 1998. Michigan participated in the NAEP reading assessments in 1992, 1994, and 1998 at grade 4. Minimum guidelines for publication of its public school results were met in 1992 and 1998, but not in 1994. In 1998, Michigan also satisfied the criteria for reporting nonpublic school results. Michigan chose not to participate at grade 8 in 1998. Details on participation rates and guidelines for all participating jurisdictions can be found in Appendix A of the *Reading Report Card*.

Possible Sources of Bias in Reported Results

Within a certain state sample that meets the guidelines for publication of results, there still may exist possible sources of bias of the results due to nonparticipation of selected schools or due to nonparticipation of certain student groups. These possible sources of bias are indicated by notations and are specified and described in Appendix A of the *Reading Report Card*. Michigan's public schools did not receive any notations to indicate the possibility of bias.

Participation by Students with Disabilities or Who Are Learning English

NAEP endeavors to assess all students selected in the randomized sampling process including students with disabilities (SD) as well as students who are beginning to learn English and are classified by their schools as limited English proficient (LEP). Although the guidelines used to classify students into these two categories vary from state to state, NAEP criteria for inclusion standardize the selection of students. The recent Individuals with Disabilities Education Act (IDEA) should bring further consistency to classification criteria. The percentages of students classified as SD or LEP in all participating states and jurisdictions are available at the NAEP Web site in the all-jurisdiction summary data tables (SDTs). Participation guidelines specify levels of SD/LEP student nonparticipation that put the sample at risk for nonresponse bias; however, no jurisdiction failed to meet these guidelines for the 1998 reading assessment.

NAEP offers certain accommodations for SD or LEP students who need them (for example, large print test booklets or extended time), as described in the *NAEP 1998 Reading Report Card* and in a special report to follow. However, school personnel make the ultimate decision as to whether or not a particular student should take the assessment and whether accommodations are needed. The following table shows the percentage of students in Michigan who were classified as SD or LEP in 1998 and also the percentage of those students who were excluded from NAEP at the discretion of school personnel.

Students in Michigan who are classified as limited English proficient (LEP) or having disabilities, 1998

Percentage of students who are:	*School Type*	
	Public	Nonpublic
Grade 4		
Classified as LEP	2%	0%
Excluded from the assessment due to LEP	1%	0%
Classified as students with disabilities	8%	1%
Excluded from the assessment due to disability	6%	1%

— Nonpublic schools did not participate or minimum participation guidelines were not met.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Reading Assessment.

How Are Performance Differences Reported?

Because the percentages of students and the average reading scale scores presented in this report are based on samples—rather than on the entire population of fourth graders in a jurisdiction—the numbers reported are necessarily *estimates*. As such, they are subject to sampling error, a measure of uncertainty reflected in the *standard error*[5] of the estimate. When the percentages or average scale scores of certain groups are compared, it is essential to take the standard error into account rather than to rely solely on observed similarities or differences. The comparisons discussed in this report are based on statistical tests that consider both the magnitude of the differences between the averages or percentages and the standard errors of those statistics.

The statistical tests determine whether the evidence—based on the data from the groups in the sample—is strong enough to conclude that there is an actual difference in the averages or percentages for those groups in the population. If the evidence is strong (i.e., the difference is statistically significant), the report describes the group averages or percentages as being different (e.g., one group performed *higher than* or *lower than* another group) regardless of whether the sample averages or percentages appear to be about the same or not. If the evidence is not sufficiently strong (i.e., the difference is not statistically significant), the averages or percentages are described as being *not significantly different*—again, regardless of whether the sample averages or sample percentages appear to be about the same or widely discrepant.

In this report, statements that compare groups or years by using terms such as "higher" or "no significant difference" (e.g., "females scored higher than males" or "scores in 1998 were not significantly different from 1992") are based on the results of statistical tests. Change over time that is statistically significant is indicated in the tables. The reader is cautioned to rely on the results of the statistical tests (as expressed in the bulleted text or as indicated in the tables) rather than on the apparent magnitude of any difference in scale scores or percentages in making inferences from the data. The statistical tests are discussed in greater detail in the *NAEP 1998 Reading Report Card* and the forthcoming *NAEP 1998 Technical Report*.

[5] Standard errors measure the uncertainty that another sample drawn from the same population could have yielded somewhat different results.

SECTION 2 Overall Reading Performance and Performance by Demographic Characteristics

Since its inception in 1969, NAEP's mission has been to collect, analyze, and produce valid and reliable information about the academic performance of students in the United States in various learning areas. In 1990, the mission of NAEP was expanded to provide state-by-state results on academic achievement. To provide reports with each state's data, the computer-generated reporting system was developed; this report was produced using that system.

From 1990 through 1996, NAEP provided state reports with a variety of variables chosen for their general interest to most states. Because of new Internet capabilities, and with the approval of the state NAEP representatives, the 1998 state reports are tailored to provide information of most immediate need to all states. Consequently, results are reported here by total population and broken out by major demographic variables only. State NAEP results on the Internet provide resources for customized reports not possible in the past.

Reported in this section are the results for student performance overall as well as disaggregated by the main demographic variables usually reported by NAEP:

- Gender
- Race/ethnicity
- Eligibility for the free or reduced-price school lunch program
- Type of school location (where applicable)
- Type of school (public compared to nonpublic, where available)

Each of these variables is reported first by average scale score and selected percentiles and then by percentages of students at or above each achievement level.

The reader is cautioned against making inferences about the performance of students in these groups, or about the effectiveness of the National School Lunch Program or types of school control, because there are generally many other factors involved that are not discussed here and possibly not addressed by NAEP.

Students' Overall Scale Scores

Table 1A shows the overall performance of Michigan's public school students, as well as the overall performance for the Central region and the nation. The first column of results gives the average scale score on the NAEP 0–500 reading scale.

The columns to the right show the score at each of the selected percentiles. This arrangement permits a more detailed view of performance along the distribution of lowest to highest scores, with the score at each percentile as a demarcation point—for each percentile, that percentage of scores falls below the score at that percentile. For instance, 75 percent of the student scores fall below the score shown at the 75th percentile. If, for a particular jurisdiction, the score at the 75th percentile is equal to the national average, 25 percent of its students performed better than the national average. A jurisdiction might also compare the score at its 25th percentile for the current year to that of a previous year to see what change has occurred for students who scored in the lower quartile.

In terms of the average NAEP reading scale score for Michigan's public school students, Table 1A shows the following.

Public School Students, Grade 4

- In 1998, the average reading scale score for students in Michigan was 217. This did not differ significantly from that of fourth graders in public schools across the nation (215).
- In Michigan, the average scale score of students was not significantly different in 1998 (217) from that in 1992 (216). Similarly, the average scale score of fourth graders across the nation was not significantly different in 1998 (215) from that in 1992 (215).

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TABLE 1A

Average reading scale scores and selected percentiles for public school students: 1992 and 1998

		Average scale score	Scale score distribution				
			10th percentile	25th percentile	50th percentile	75th percentile	90th percentile
Grade 4							
1998	Michigan	217 (1.7)	171 (2.6)	196 (1.6)	219 (0.9)	241 (1.6)	258 (1.3)
	Central	220 (2.0)	174 (3.7)	199 (3.3)	223 (2.3)	245 (2.3)	262 (1.2)
	Nation	215 (0.8)	165 (2.2)	192 (1.1)	218 (0.9)	242 (1.0)	261 (1.3)
1992	Michigan	216 (1.5)	173 (2.3)	195 (1.8)	219 (1.4)	239 (2.0)	256 (1.6)
	Central	218 (1.5)	172 (3.7)	196 (2.4)	221 (1.9)	241 (2.5)	260 (3.7)
	Nation	215 (1.0)	168 (1.9)	192 (1.0)	217 (1.7)	240 (1.3)	259 (2.3)

The NAEP reading scale ranges from 0 to 500. The standard errors of the statistics in the table appear in parentheses. If the notation »(«) appears, it signifies that the 1998 value was significantly higher (lower) than the value for 1992 at about the 95 percent confidence level. *** Sample size is insufficient to permit a reliable estimate.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1992 and 1998 Reading Assessments.

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Overall Results in Terms of Achievement Levels

Table 1B presents the percentages of students who performed below *Basic*, at or above *Basic*, at or above *Proficient*, and at *Advanced* levels. Because the percentages in the levels are cumulative from *Basic* to *Proficient* to *Advanced*, they sum to more than 100 percent. Only the percentage of students at or above *Basic* (which includes *Proficient* and *Advanced*) plus the percentage of students below *Basic* will always sum to 100 percent.

Table 1B indicates the following in terms of achievement levels attained by Michigan's public school students.

Public School Students, Grade 4

- In 1998, the percentage of Michigan students who performed at or above the *Proficient* level was 28 percent. This did not differ significantly from the percentage of the nation's public school students who performed at the same level (29 percent).
- The percentage of students performing at or above the *Proficient* level in Michigan did not differ significantly in 1998 (28 percent) from that in 1992 (26 percent).
- The percentage of students in Michigan who performed at or above the *Basic* level in 1998 (63 percent) was not significantly different from that for the nation's public school students (61 percent).

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TABLE 1B

Percentages of public school students attaining achievement levels: 1992 and 1998

		Below *Basic*	At or Above *Basic*	At or Above *Proficient*	*Advanced*
Grade 4					
1998	Michigan	37 (2.2)	63 (2.2)	28 (1.6)	5 (0.6)
	Central	33 (2.3)	67 (2.3)	32 (2.1)	7 (0.9)
	Nation	39 (1.0)	61 (1.0)	29 (0.9)	6 (0.5)
1992	Michigan	38 (1.9)	62 (1.9)	26 (2.0)	4 (0.6)
	Central	35 (1.9)	65 (1.9)	29 (2.4)	6 (1.2)
	Nation	40 (1.1)	60 (1.1)	27 (1.3)	6 (0.6)

The achievement levels correspond to the following points on the NAEP reading scale at grade 4: *Basic*, 208-237; *Proficient*, 238-267; and *Advanced*, 268 and above. The standard errors of the statistics in the table appear in parentheses. If the notation "(=)" appears, it signifies that the 1998 value was significantly higher (lower) than the value for 1992 at about the 95 percent confidence level. ‡‡‡ Sample size is insufficient to permit a reliable estimate.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1992 and 1998 Reading Assessments.

Gender

This report focuses on trend differences, for example, whether females' performance has improved since 1992. The indicators of significant differences that appear in the tables come from a comparison of performance by males or females over time. Another issue covered in many studies and by comparisons below (but not in the tables) is that of differences in performance between males and females. Several studies show that females outperform males in development of literacy at the elementary and middle school grades; reports documenting or surveying gender differences in reading include *NAEP 1996 Trends in Academic Progress*[6] and *The Condition of Education*.[7]

Table 2A shows scale scores for public school fourth graders by gender in Michigan, the Central region, and the nation.

Scale Score Results by Gender

In terms of average reading scale scores for Michigan's public school students, Table 2A shows the following.

Public School Students, Grade 4

- In Michigan, male students' average scale score was 212 in 1998. This was lower than that of females (221).
- In 1998, male students in Michigan had an average scale score in reading (212) that did not differ significantly from that of fourth-grade males across the nation (212). Similarly, females in Michigan had an average score (221) that did not differ significantly from that of females nationwide (218).
- The average reading scale score of Michigan's fourth-grade males did not differ significantly in 1998 (212) from that in 1992 (214). Similarly, the average scale score of female students did not differ significantly in 1998 (221) from that in 1992 (218).

[6] Campbell, J., Voelkl, K., & Donahue, P. (1997). *NAEP 1996 trends in academic progress* (NCES Publication No. 97-985). Washington, DC: National Center for Education Statistics.

[7] For instance, see Indicator 20. U.S. Department of Education. (1996). *The condition of education 1996* (NCES Publication No. 96-304). Washington, DC: Office of Educational Research and Improvement.

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TABLE 2A

Average reading scale scores and selected percentiles for public school students by gender: 1992 and 1998

	Percentage of total population	Average scale score	Scale score distribution				
			10th percentile	25th percentile	50th percentile	75th percentile	90th percentile
Males							
Grade 4							
1998 Michigan	49 (1.0)	212 (1.9)	165 (5.3)	190 (3.0)	215 (1.1)	236 (2.1)	253 (2.0)
Central	52 (1.3)	217 (3.0)	171 (5.3)	196 (3.7)	221 (4.4)	243 (2.1)	260 (2.8)
Nation	50 (0.7)	212 (1.2)	161 (2.8)	188 (1.3)	215 (1.1)	240 (1.9)	259 (1.4)
1992 Michigan	50 (1.1)	214 (1.8)	169 (3.2)	192 (2.8)	216 (1.5)	237 (2.2)	255 (1.5)
Central	54 (1.1)	216 (1.6)	170 (3.6)	194 (1.8)	220 (2.2)	240 (3.5)	258 (2.8)
Nation	51 (0.7)	211 (1.3)	163 (2.1)	188 (1.9)	213 (1.4)	237 (2.0)	256 (2.4)
Females							
Grade 4							
1998 Michigan	51 (1.0)	221 (1.8)	178 (2.9)	201 (3.4)	223 (1.7)	245 (2.2)	262 (2.0)
Central	48 (1.3)	224 (1.9)	179 (5.4)	203 (3.1)	226 (1.9)	248 (2.2)	266 (1.6)
Nation	50 (0.7)	218 (0.8)	170 (1.7)	195 (1.5)	221 (1.0)	244 (1.2)	263 (1.1)
1992 Michigan	50 (1.1)	218 (1.5)	176 (3.9)	198 (2.5)	221 (1.5)	241 (1.9)	257 (1.9)
Central	46 (1.1)	220 (2.4)	175 (5.2)	200 (2.7)	222 (2.6)	243 (3.8)	262 (3.9)
Nation	49 (0.7)	219 (1.1)	173 (2.1)	197 (2.0)	221 (1.1)	243 (1.6)	262 (1.7)

The NAEP reading scale ranges from 0 to 500. The standard errors of the statistics in the table appear in parentheses. If the notation »(«) appears, it signifies that the 1998 value was significantly higher (lower) than the value for 1992 at about the 95 percent confidence level. *** Sample size is insufficient to permit a reliable estimate. **** Standard error estimates cannot be accurately determined.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1992 and 1998 Reading Assessments.

Achievement Level Results by Gender

As shown in Table 2B, the following is true of achievement levels attained by Michigan's public school students.

Public School Students, Grade 4

- In 1998, 23 percent of males and 33 percent of females performed at or above the *Proficient* level in Michigan. These percentages were significantly different.
- The percentage of males in Michigan who were at or above the *Proficient* level in 1998 (23 percent) was not significantly different from that of males in the nation (27 percent).
- The percentage of females in Michigan at or above this level in 1998 (33 percent) was not significantly different from that of the nation's females (31 percent).
- The percentages of both males and females performing at or above the *Proficient* level were not significantly different in 1998 from those in 1992.

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TABLE 2B

Percentages of public school students attaining achievement levels by gender: 1992 and 1998

		Below *Basic*	At or Above *Basic*	At or Above *Proficient*	*Advanced*
Males					
Grade 4					
1998	Michigan	41 (2.3)	59 (2.3)	23 (1.8)	3 (0.7)
	Central	36 (3.4)	64 (3.4)	30 (3.4)	5 (1.5)
	Nation	43 (1.5)	57 (1.5)	27 (1.3)	6 (0.7)
1992	Michigan	40 (2.5)	60 (2.5)	24 (2.3)	4 (0.8)
	Central	38 (2.7)	62 (2.7)	27 (2.8)	5 (1.4)
	Nation	44 (1.7)	56 (1.7)	24 (1.5)	5 (0.7)
Females					
Grade 4					
1998	Michigan	32 (2.7)	68 (2.7)	33 (2.3)	6 (1.0)
	Central	30 (2.6)	70 (2.6)	35 (2.5)	8 (1.0)
	Nation	36 (1.1)	64 (1.1)	31 (1.1)	7 (0.6)
1992	Michigan	35 (2.0)	65 (2.0)	28 (2.2)	4 (0.8)
	Central	33 (3.6)	67 (3.6)	30 (2.6)	7 (1.7)
	Nation	35 (1.5)	65 (1.5)	30 (1.5)	7 (0.9)

The achievement levels correspond to the following points on the NAEP reading scale at grade 4: *Basic*, 208-237; *Proficient*, 238-267; and *Advanced*, 268 and above. The standard errors of the statistics in the table appear in parentheses. If the notation "(=)" appears, it signifies that the 1998 value was significantly higher (lower) than the value for 1992 at about the 95 percent confidence level. *** Sample size is insufficient to permit a reliable estimate.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1992 and 1998 Reading Assessments.

Race/Ethnicity

As part of the background questionnaire administered with the assessment, students were asked to identify the racial/ethnic subgroup that best described them. The five mutually exclusive categories were White, Black, Hispanic, Asian/Pacific Islander, and American Indian. This information was the primary contributor to the classifications appearing below. For details of the derivation of this variable, see the *NAEP 1998 Reading Report Card.*

Table 3A shows scale scores for public school students by racial and ethnic background in Michigan, the Central region, and the nation. Only the race/ethnicity categories with sufficient membership to meet reporting requirements in Michigan are reported.

Scale Score Results by Race/Ethnicity

In terms of average reading scale scores for Michigan's public school students, Table 3A indicates the following.

Public School Students, Grade 4

- In 1998, White students in Michigan had an average scale score that was higher than those of Black and Hispanic students.
- The average scale score of White, Black, and Hispanic students in Michigan did not differ significantly in 1998 from in 1992.

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TABLE 3A

Average reading scale scores and selected percentiles for public school students by race/ethnicity: 1992 and 1998

		Percentage of total population	Average scale score	Scale score distribution				
				10th percentile	25th percentile	50th percentile	75th percentile	90th percentile
White								
Grade 4								
1998	Michigan	73 (2.2)	225 (1.3)	185 (2.0)	207 (1.6)	226 (1.6)	246 (0.9)	262 (1.2)
	Central	78 (1.9)	227 (1.7)	186 (3.2)	208 (2.6)	229 (1.5)	250 (2.3)	266 (2.5)
	Nation	66 (0.6)»	225 (0.9)	181 (3.2)	204 (1.7)	228 (0.8)	249 (1.2)	266 (1.2)
1992	Michigan	74 (1.6)	223 (1.5)	184 (1.7)	204 (2.0)	225 (1.7)	243 (1.7)	259 (1.1)
	Central	79 (1.5)	224 (1.8)	182 (4.0)	204 (2.1)	225 (2.4)	245 (2.7)	262 (3.5)
	Nation	69 (0.5)	223 (1.3)	180 (2.3)	202 (1.4)	225 (1.6)	246 (1.3)	264 (1.6)
Black								
Grade 4								
1998	Michigan	14 (2.0)	191 (3.9)	148 (5.9)	170 (4.2)	193 (3.3)	213 (2.6)	233 (3.8)
	Central	12 (1.8)	194 (3.9)	146 (10.8)	171 (7.2)	197 (3.2)	217 (2.5)	235 (4.2)
	Nation	16 (0.4)	193 (1.8)	145 (5.1)	170 (5.0)	195 (2.0)	218 (2.2)	237 (1.8)
1992	Michigan	13 (1.6)	188 (3.0)	147 (3.1)	168 (4.6)	187 (3.3)	208 (2.5)	230 (5.0)
	Central	11 (1.3)	187 (3.3)	145 (6.3)	164 (8.5)	189 (5.6)	211 (4.1)	227 (11.4)
	Nation	17 (0.4)	192 (1.6)	148 (3.5)	169 (3.0)	193 (2.0)	215 (2.6)	235 (2.2)
Hispanic								
Grade 4								
1998	Michigan	9 (1.0)	193 (4.8)	136 (15.2)	168 (7.5)	197 (2.8)	222 (3.5)	240 (3.1)
	Central	7 (0.9)	193 (4.2)	144 (9.2)	169 (5.3)	195 (7.1)	221 (8.4)	239 (7.5)
	Nation	14 (0.5)»	195 (1.9)	145 (2.7)	170 (3.0)	196 (2.2)	222 (2.0)	242 (2.4)
1992	Michigan	8 (0.8)	198 (2.8)	155 (6.6)	174 (2.3)	200 (8.0)	222 (4.0)	239 (2.3)
	Central	7 (1.0)	209 (4.7)	158 (13.8)	183 (3.5)	210 (4.8)	236 (7.7)	254 (21.4)
	Nation	10 (0.3)	199 (2.2)	151 (4.2)	175 (2.4)	200 (3.7)	225 (3.9)	245 (2.4)

The NAEP reading scale ranges from 0 to 500. The standard errors of the statistics appear in parentheses. If the notation »(«) appears, it signifies that the 1998 value was significantly higher (lower) than the value for 1992 at about the 95 percent confidence level.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1992 and 1998 Reading Assessments.

Achievement Level Results by Race/Ethnicity

Table 3B shows the following to be true of achievement levels attained by Michigan's public school students.

Public School Students, Grade 4

- In Michigan in 1998, the percentage of White students performing at or above the *Proficient* level was greater than those of Black and Hispanic students.
- The respective percentages of White, Black, and Hispanic students in Michigan performing at or above the *Proficient* level did not differ significantly in 1998 from those in 1992.

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TABLE 3B

Percentages of public school students attaining achievement levels by race/ethnicity: 1992 and 1998

		Below *Basic*	At or Above *Basic*	At or Above *Proficient*	*Advanced*
White					
Grade 4					
1998	Michigan	26 (1.9)	74 (1.9)	34 (1.7)	6 (0.8)
	Central	25 (2.1)	75 (2.1)	39 (2.3)	8 (1.1)
	Nation	28 (1.2)	72 (1.2)	38 (1.2)	9 (0.7)
1992	Michigan	29 (2.1)	71 (2.1)	32 (2.3)	5 (0.7)
	Central	29 (1.8)	71 (1.8)	33 (2.9)	7 (1.5)
	Nation	30 (1.5)	70 (1.5)	33 (1.9)	8 (1.0)
Black					
Grade 4					
1998	Michigan	70 (3.4)	30 (3.4)	8 (2.3)	1 (****)
	Central	64 (3.7)	36 (3.7)	8 (2.6)	1 (****)
	Nation	65 (1.9)	35 (1.9)	9 (1.0)	1 (0.5)
1992	Michigan	75 (3.1)	25 (3.1)	6 (1.9)	0 (****)
	Central	72 (4.5)	28 (4.5)	4 (2.0)	0 (****)
	Nation	68 (2.1)	32 (2.1)	8 (1.4)	1 (****)
Hispanic					
Grade 4					
1998	Michigan	61 (4.7)	39 (4.7)	11 (2.6)	1 (****)
	Central	65 (6.1)	35 (6.1)	11 (2.5)	3 (0.7)
	Nation	62 (2.0)	38 (2.0)	12 (1.3)	2 (0.4)
1992	Michigan	58 (4.8)	42 (4.8)	11 (3.1)	1 (****)
	Central	46 (7.4)	54 (7.4)	23 (5.6)	6 (3.8)
	Nation	58 (2.1)	42 (2.1)	14 (1.8)	2 (1.0)

The achievement levels correspond to the following points on the NAEP reading scale at grade 4: *Basic*, 208-237; *Proficient*, 238-267; and *Advanced*, 268 and above. The standard errors of the statistics appear in parentheses. If the notation =(=) appears, it signifies that the 1998 value was significantly higher (lower) than the value for 1992 at about the 95 percent confidence level. **** Standard error estimates cannot be accurately determined.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1992 and 1998 Reading Assessments.

Free/Reduced-Price Lunch Program Eligibility

NAEP tracks eligibility for the federal program providing free or reduced-price school lunches. The free/reduced-price lunch component of the National School Lunch Program (NSLP) offered through the U.S. Department of Agriculture (USDA), is designed to ensure that children near or below the poverty line receive nourishing meals. This program is available to public schools, nonprofit private schools, and residential child care institutions. Eligibility is determined through the USDA's Income Eligibility Guidelines, and results for this category of students are included as an indicator of poverty. More information is available at the USDA Web site, in particular, in a question-and-answer style document called "Nutrition Program Facts" at http://www.usda.gov/fcs/cnp/school*2.htm. NAEP first collected information on participation in this program in 1996.

NAEP collects data on student eligibility for the NSLP in five categories: eligible for reduced-price lunches, eligible for free lunches, not eligible for the NSLP, information was not available, or schools did not provide the information. Because some of these groups were small, these categories were combined into eligible, not eligible, and information not available, as reported here for groups meeting minimum sample size requirements.

Scale Score Results by Eligibility for the Free/Reduced-Price Lunch Program

In terms of average reading scale scores for Michigan's public school students in 1998, Table 4A shows the following.

Public School Students, Grade 4

- Students in Michigan eligible for free/reduced-price lunch had an average reading scale score of 200. This was lower than that of students not eligible for this program (226).
- Students in Michigan eligible for free/reduced-price lunch had an average scale score (200) that did not differ significantly from that of similar fourth-grade students in the nation (198).

THE NATION'S REPORT CARD naep 1998 State Assessment

TABLE 4A

Average reading scale scores and selected percentiles by free/reduced-price lunch eligibility: 1998

	Percentage of total population	Average scale score	Scale score distribution				
			10th percentile	25th percentile	50th percentile	75th percentile	90th percentile
Eligible							
Grade 4							
1998 Michigan	34 (2.1)	200 (2.6)	151 (3.0)	176 (4.1)	201 (3.3)	225 (2.9)	245 (4.8)
Central	30 (3.6)	203 (2.4)	160 (6.5)	182 (4.0)	206 (3.5)	227 (1.1)	242 (3.2)
Nation	38 (1.3)	198 (1.2)	150 (2.7)	175 (1.6)	200 (1.7)	224 (1.8)	243 (1.5)
Not eligible							
Grade 4							
1998 Michigan	61 (2.5)	226 (1.3)	188 (2.4)	208 (1.5)	227 (1.2)	247 (1.3)	263 (1.7)
Central	65 (3.0)	228 (2.0)	185 (6.9)	209 (3.1)	231 (2.1)	252 (1.1)	267 (1.3)
Nation	54 (1.9)	226 (1.0)	181 (1.7)	205 (1.5)	229 (1.1)	250 (1.0)	267 (1.1)
Information not available							
Grade 4							
1998 Michigan	6 (2.2)	214 (7.5)!	177 (9.8)!	195 (9.3)!	215 (6.9)!	236 (6.3)!	252 (5.4)!
Central	6 (1.9)	*** (**.*)	*** (**.*)	*** (**.*)	*** (**.*)	*** (**.*)	*** (**.*)
Nation	7 (1.9)	225 (4.0)!	177 (4.0)!	203 (6.0)!	227 (5.1)!	251 (4.7)!	268 (4.4)!

The NAEP reading scale ranges from 0 to 500. The standard errors of the statistics in the table appear in parentheses.
! Interpret with caution—the nature of the sample does not allow accurate determination of the variability of this statistic.
*** Sample size is insufficient to permit a reliable estimate.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Reading Assessment.

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Achievement Level Results by Eligibility for the Free/Reduced-Price Lunch Program

In terms of achievement levels attained by public school students in 1998, Table 4B indicates the following.

Public School Students, Grade 4

- In Michigan, 14 percent of students who were eligible for the free/reduced-price lunch program and 36 percent of students who were not eligible for this service performed at or above the *Proficient* level. These percentages were significantly different.
- For students in Michigan who were eligible for the free/reduced-price lunch program, the percentage at or above the *Proficient* level (14 percent) was not significantly different from the corresponding percentage for their national counterparts (13 percent).

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TABLE 4B

Percentages of public school students attaining achievement levels by free/reduced-price lunch eligibility: 1998

		Below *Basic*	At or Above *Basic*	At or Above *Proficient*	*Advanced*
Eligible					
Grade 4					
1998	Michigan	57 (3.3)	43 (3.3)	14 (1.9)	1 (0.6)
	Central	52 (2.8)	48 (2.8)	13 (2.9)	1 (0.8)
	Nation	58 (1.5)	42 (1.5)	13 (1.2)	1 (0.4)
Not eligible					
Grade 4					
1998	Michigan	25 (1.9)	75 (1.9)	36 (1.8)	7 (0.7)
	Central	24 (2.5)	76 (2.5)	42 (2.4)	10 (1.3)
	Nation	28 (1.3)	72 (1.3)	39 (1.3)	10 (0.9)
Information not available					
Grade 4					
1998	Michigan	42 (12.7)!	58 (12.7)!	23 (8.1)!	3 (1.1)!
	Central	*** (** *)	*** (** *)	*** (** *)	*** (** *)
	Nation	30 (4.0)!	70 (4.0)!	38 (6.3)!	10 (2.0)!

The achievement levels correspond to the following points on the NAEP reading scale at grade 4: *Basic*, 208-237; *Proficient*, 238-267; and *Advanced*, 268 and above. The standard errors of the statistics in the table appear in parentheses.
! Interpret with caution—the nature of the sample does not allow accurate determination of the variability of this statistic.
*** Sample size is insufficient to permit a reliable estimate.
SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Reading Assessment.

Type of Location

Attention has been given recently to America's urban schools, often with the perception that these schools and their students compare less favorably to their nonurban counterparts.[8] Information on students according to school location is important to the efforts to ensure equal access to a high quality education for all. NAEP public school location is based on both the NCES Common Core of Data (CCD) and the Quality Education Data (QED) file, as drawn from U.S. Census data and definitions.

Schools that participated in the assessment were classified into three mutually exclusive types of geographic location—Central City, Urban Fringe/Large Town, and Rural/Small Town. General information (including definitions) about these categories and schools' categorization within them can be found in the technical reports for the 1996 NAEP state assessments in Chapter 3, "Sample Design and Selection." Information on urbanicity specific to the 1998 state assessment will be available in the *NAEP 1998 Technical Report*.

Table 5A presents fourth-grade scale score results according to the location type of the schools that students attended in Michigan and the nation.

Scale Score Results by Type of Location

In terms of average reading scale scores for public school students in Michigan, Table 5A reveals the following.

Public School Students, Grade 4

- In 1998 in Michigan, the average reading scale score of students attending schools in central cities was lower than those of students in urban fringes/large towns and rural areas/small towns.
- The average scale scores of students attending schools in all three types of locations in Michigan did not differ significantly in 1998 from those in 1992.

[8] U.S. Department of Education, National Center for Education Statistics (1996). *Urban schools: The challenge of location and poverty* (NCES Publication No. 96-184). Washington, DC: U.S. Government Printing Office.

THE NATION'S REPORT CARD
1998 State Assessment

TABLE 5A

Average reading scale scores and selected percentiles for public school students by type of location: 1992 and 1998

	Percentage of total population	Average scale score	Scale score distribution				
			10th percentile	25th percentile	50th percentile	75th percentile	90th percentile
Central city							
Grade 4							
1998 Michigan	27 (1.8)	198 (4.0)	146 (5.7)	172 (4.0)	200 (4.7)	226 (3.5)	248 (4.2)
Nation	33 (1.8)	208 (1.8)	158 (5.0)	183 (2.4)	209 (1.4)	234 (2.5)	255 (2.3)
1992 Michigan	27 (3.1)	205 (4.7)	156 (4.6)	177 (5.7)	204 (6.3)	233 (6.8)	255 (6.4)
Nation	32 (2.8)	207 (1.5)	159 (2.6)	183 (2.6)	209 (1.9)	232 (1.9)	253 (2.6)
Urban fringe/ large town							
Grade 4							
1998 Michigan	42 (2.0)	224 (2.0)	185 (3.4)	205 (2.7)	225 (1.7)	245 (1.5)	262 (1.8)
Nation	35 (2.5)	220 (1.8)	168 (2.8)	197 (2.8)	224 (2.2)	248 (1.9)	266 (1.9)
1992 Michigan	42 (4.0)	219 (1.7)	180 (2.3)	200 (1.7)	221 (1.8)	240 (3.0)	256 (2.3)
Nation	40 (3.6)	219 (2.2)	173 (4.4)	196 (2.1)	222 (2.6)	244 (1.9)	263 (3.5)
Rural/small town							
Grade 4							
1998 Michigan	31 (2.2)	222 (2.0)	184 (3.9)	204 (3.9)	224 (2.2)	242 (1.3)	259 (2.0)
Nation	32 (2.1)	218 (1.2)	172 (1.3)	196 (1.2)	221 (1.7)	243 (1.6)	261 (1.7)
1992 Michigan	31 (4.0)	222 (1.9)	184 (2.4)	203 (2.7)	223 (2.5)	241 (1.9)	256 (1.5)
Nation	28 (2.6)	218 (2.4)	173 (2.9)	197 (4.3)	220 (2.1)	240 (2.6)	258 (3.3)

The NAEP reading scale ranges from 0 to 500. The standard errors of the statistics in the table appear in parentheses. If the notation "<" appears, it signifies that the 1998 value was significantly higher (lower) than the value for 1992 at about the 95 percent confidence level. Characteristics of the school sample do not permit reliable regional results for type of location.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1992 and 1998 Reading Assessments.

Achievement Level Results by Type of Location

In terms of achievement levels for public school students in Michigan, Table 5B indicates the following.

Public School Students, Grade 4

- In 1998, the percentage of students attending schools in central cities in Michigan who performed at or above the *Proficient* level was smaller than the corresponding percentages for students in urban fringes/large towns and rural areas/small towns.
- The percentages of students attending schools in all three types of locations in Michigan who performed at or above the *Proficient* level did not differ significantly in 1998 from those in 1992.

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TABLE 5B

Percentages of public school students attaining achievement levels by type of location: 1992 and 1998

		Below *Basic*	At or Above *Basic*	At or Above *Proficient*	*Advanced*
Central city					
Grade 4					
1998	Michigan	59 (4.7)	41 (4.7)	17 (3.3)	3 (1.0)
	Nation	49 (2.1)	51 (2.1)	22 (1.9)	4 (0.6)
1992	Michigan	54 (6.0)	46 (6.0)	21 (5.0)	4 (1.5)
	Nation	49 (2.0)	51 (2.0)	20 (1.4)	4 (0.7)
Urban fringe/large town					
Grade 4					
1998	Michigan	28 (2.6)	72 (2.6)	34 (2.6)	6 (0.9)
	Nation	34 (2.1)	66 (2.1)	35 (1.8)	9 (0.9)
1992	Michigan	34 (2.4)	66 (2.4)	27 (2.4)	4 (1.0)
	Nation	36 (2.5)	64 (2.5)	31 (2.7)	7 (1.2)
Rural/small town					
Grade 4					
1998	Michigan	29 (2.9)	71 (2.9)	30 (2.7)	5 (1.1)
	Nation	35 (1.8)	65 (1.8)	30 (2.2)	6 (0.7)
1992	Michigan	30 (2.3)	70 (2.3)	29 (2.9)	4 (0.7)
	Nation	36 (2.5)	64 (2.5)	28 (2.6)	5 (1.5)

The achievement levels correspond to the following points on the NAEP reading scale at grade 4: *Basic*, 208-237; *Proficient*, 238-267; and *Advanced*, 268 and above. The standard errors of the statistics in the table appear in parentheses. If the notation "(=)" appears, it signifies that the 1998 value was significantly higher (lower) than the value for 1992 at about the 95 percent confidence level. Characteristics of the school sample do not permit reliable regional results for type of location.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1992 and 1998 Reading Assessments.

Type of School

The 1994 NAEP assessment marked the first time that nonpublic school students were assessed at the state level. Michigan met the participation guidelines for reporting nonpublic school results for the reading assessment in 1998 at grade 4.[9] Results are reported for nonpublic schools and also for public and nonpublic schools combined.

In 1998, approximately 12 percent of fourth graders in Michigan attended nonpublic schools. For the nation, 11 percent of students at grade 4 attended nonpublic schools in 1998.

The reader should not make inferences about any apparent differences in performance between students attending public schools and those attending nonpublic schools. Such differences may be related to socioeconomic and sociological factors, such as the level of parental involvement in a child's education.

Additional information on nonpublic schools, including disaggregation by type of nonpublic school, is in the *NAEP 1998 Reading Report Card*.

Table 6A presents scale score results for students in public schools, in nonpublic schools, and for students in public and nonpublic schools combined.

Scale Score Results by Type of School

In terms of average reading scale scores for Michigan's students, Table 6A provides the following information.

Public and Nonpublic School Students, Grade 4

- In 1998, the average scale score for students in nonpublic schools in Michigan was 235. This was higher than that for students in public schools (217).
- The average scale score for Michigan's nonpublic school students (235) was not significantly different from that for students in the nation's nonpublic schools (233) in 1998.

[9] The *NAEP 1998 Reading Report Card* contains full information on the participation guidelines in Appendix A. The *Report Card* is available at http://nces.ed.gov/naep/.

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TABLE 6A

Average reading scale scores and selected percentiles for students by type of school: 1998

	Percentage of total population	Average scale score	Scale score distribution				
			10th percentile	25th percentile	50th percentile	75th percentile	90th percentile
Public							
Grade 4							
1998 Michigan	88 (1.2)	217 (1.7)	171 (2.6)	196 (1.6)	219 (0.9)	241 (1.6)	258 (1.3)
Central	85 (3.3)	220 (2.0)	174 (3.7)	199 (3.3)	223 (2.3)	245 (2.3)	262 (1.2)
Nation	89 (1.2)	215 (0.8)	165 (2.2)	192 (1.1)	218 (0.9)	242 (1.0)	261 (1.3)
Nonpublic							
Grade 4							
1998 Michigan	12 (1.2)	235 (2.8)	198 (8.0)	218 (3.3)	237 (5.0)	254 (2.7)	269 (3.9)
Central	15 (3.3)	232 (4.4)!	186 (7.7)!	210 (5.6)!	235 (5.2)!	256 (2.8)!	276 (7.2)!
Nation	11 (1.2)	233 (2.3)	187 (4.3)	211 (4.2)	235 (2.4)	256 (2.0)	274 (3.3)
Combined							
Grade 4							
1998 Michigan	100 (****)	219 (1.6)	173 (3.2)	198 (2.8)	222 (1.6)	243 (1.1)	260 (1.0)
Central	100 (****)	222 (2.0)	176 (2.5)	200 (3.3)	225 (1.7)	247 (2.1)	264 (1.7)
Nation	100 (****)	217 (0.8)	167 (1.6)	193 (0.9)	220 (1.0)	244 (0.9)	263 (1.0)

The *Combined* sample may include students attending Bureau of Indian Affairs (BIA) schools and/or Department of Defense (DoDEA/DDESS) schools. These students are not included in either the *Public* or the *Nonpublic* sample. The NAEP reading scale ranges from 0 to 500. The standard errors of the statistics in the table appear in parentheses.
! Interpret with caution—the nature of the sample does not allow accurate determination of the variability of this statistic.
*** Sample size is insufficient to permit a reliable estimate. **** Standard error estimates cannot be accurately determined.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Reading Assessment.

Achievement Level Results by Type of School

In terms of achievement levels attained by Michigan's students, Table 6B shows the following.

Public and Nonpublic School Students, Grade 4

- In Michigan, the percentage of nonpublic school students who were at or above the *Proficient* level in 1998 was 49 percent. This was greater than the corresponding percentage for students in public schools (28 percent).
- In 1998, the percentage of nonpublic school students at or above the *Proficient* level in Michigan (49 percent) was not significantly different from the corresponding percentage for students in the nation's nonpublic schools (46 percent).

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TABLE 6B

Percentage of students attaining achievement levels by type of school: 1998

		Below *Basic*	At or Above *Basic*	At or Above *Proficient*	*Advanced*
Public					
Grade 4					
1998	Michigan	37 (2.2)	63 (2.2)	28 (1.6)	5 (0.6)
	Central	33 (2.3)	67 (2.3)	32 (2.1)	7 (0.9)
	Nation	39 (1.0)	61 (1.0)	29 (0.9)	6 (0.5)
Nonpublic					
Grade 4					
1998	Michigan	17 (3.4)	83 (3.4)	49 (5.1)	11 (3.3)
	Central	23 (4.6)!	77 (4.6)!	46 (5.3)!	14 (2.8)!
	Nation	22 (2.6)	78 (2.6)	46 (2.9)	14 (1.5)
Combined					
Grade 4					
1998	Michigan	34 (2.0)	66 (2.0)	30 (1.7)	6 (0.5)
	Central	32 (2.2)	68 (2.2)	35 (1.9)	8 (0.9)
	Nation	38 (0.9)	62 (0.9)	31 (0.9)	7 (0.5)

The *Combined* sample may include students attending Bureau of Indian Affairs (BIA) schools and/or Department of Defense (DoDEA/DDESS) schools. These students are not included in either the *Public* or the *Nonpublic* sample. The achievement levels correspond to the following points on the NAEP reading scale at grade 4: *Basic*, 208-237; *Proficient*, 238-267; and *Advanced*, 268 and above. The standard errors of the statistics in the table appear in parentheses.
! Interpret with caution—the nature of the sample does not allow accurate determination of the variability of this statistic.
‡ ‡ Sample size is insufficient to permit a reliable estimate.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Reading Assessment.

Appendix A Where to Find More Information

Below are only a few suggestions for finding additional NAEP results and related information. In spring 1999, a hyperlinked version of this section will be available from the Web page that introduces the 1998 state reports, http://nces.ed.gov/naep/. Many of the reports and data files on the Web will require the use of the (free) Adobe Acrobat Reader; for tips on installing the Reader, click on the *Help* button.

Details of the NAEP Reading Assessment

For details of the assessment, refer to the companion report, the *NAEP 1998 Reading Report Card*. Both that report and the *NAEP 1998 Reading State Reports* are available on the NCES Web site, http://nces.ed.gov/naep/. For details of the framework on which the reading assessment was developed, see http://www.nagb.org/. Click on the *Publications* button on the left, and then click on *Reading Framework for the National Assessment of Educational Progress: 1992–1998*.

Late in 1999, technical information about the assessment will be available in the *NAEP 1998 Technical Report*. Until that technical report is available, many questions may be answered by searching in the *Technical Report of the NAEP 1996 State Assessment Program in Mathematics*, to be found at http://nces.ed.gov/naep/naep1996.html. The mathematics assessment was also on a cross-grade scale, so mathematics scaling procedures would be more similar to reading than would the scaling procedures in the science assessment (which was on a within-grade scale).

Participation by All Jurisdictions in 1998

Information on each jurisdiction's participation rates for schools and students is in Appendix A of the companion report, the *NAEP 1998 Reading Report Card*, to be found at http://nces.ed.gov/naep/. Participation rates from previous years are included in the *Technical Report* for the given year.

Additional Results from the Reading Assessment

For more findings from the 1998 reading assessments, refer to the 1998 results at http://nces.ed.gov/naep/. On the release date, the summary data tables (SDTs) at this site will include student and school variables for all jurisdictions, the nation, and the four NAEP geographic regions. In the spring of 1999, complete SDTs will be available for all jurisdictions, with all background questions cross-tabulated with the major demographic reporting variables (for instance, hours of television watched by level of parental education or limited English proficiency by race/ethnicity). Summary tables will also be available for the jurisdictions' schools and teachers. Results by the purposes for reading will also appear in summary data tables in spring 1999.

The **variables reported in the *State Reports*** may be found in the summary data tables at http://nces.ed.naep/. The variables reported here, with their labels in the tables are:

- **Gender**. This is DSEX in the data tables. Reports documenting or surveying gender differences in reading include *NAEP 1996 Trends in Academic Progress* at http://nces.ed.gov/naep/naep1996.html and *The Condition of Education*, for instance, *Indicator 20* at http://nces.ed.gov/pubs/ce/c9620a01.html.
- **Race/Ethnicity**. This is DRACE in the tables. An instructive explanation of the derivation appears in Appendix A of the *Reading Report Card*, at http://nces.ed.gov/naep/.
- **Students' Reports of Parents' Highest Education Level**. PARED is a derived variable also described in Appendix A of the *Reading Report Card*. The effect of parental education is discussed in a paper by Grissmer, Kirby, Berends, and Williamson (1994) at http://www.rand.org/publications/MR/MR535/MR535.html.
- **Free/Reduced-Price Lunch Program Eligibility**. The variable reported here is SLUNCH1, which is a version of SLUNCH with several of the categories of SLUNCH (e.g., reduced and free) combined. A description of the program is available at http://www.usda.gov/fcs/cnp/school÷2.htm.
- **Type of Location**. TOL3 is the label in the summary data tables. The TOL variable uses data from Common Core of Data (see http://nces.ed.gov/ccd/index.html), Private School Survey (see http://nces.ed.gov/surveys/pss.html), and Quality Education Data (see http://www.qeddata.com/).
- **Type of School**. SCHTYPE is the label in the tables. Note that the *Nonpublic* school sample includes *Private* and *Catholic* school students. *BIA* (Bureau of Indian Affairs) and *DoDEA* (Department of Defense Education Activity) students are in the *Combined* sample only.

At http://nces.ed.gov/naep/, there is a *Help* button leading to more information on these variables, including how the derived variables were created, and other useful information about the summary data tables.

Publications from NAEP Reading Assessments

NAEP also offers various special reports on reading that may be of particular interest to teachers. These may be ordered from the source at the end of this section, and some of them can be accessed and printed from the Web.

- *Reading Framework for the National Assessment of Educational Progress: 1992–1998*, from the National Assessment Governing Board (available at http://www.nagb.org/)
- *NAEP 1998 Reading Report Card for the Nation and the States*, the companion to this State Report (available at http://nces.ed.gov/naep/, the NAEP Web site)
- *NAEP 1998 Reading Sample Questions and Student Responses: Results from Public School Students in the States and Nationwide*, a forthcoming brochure with state-level results for the released items
- *The NAEP 1998 Reading Report Card National Highlights*, a brochure with student samples, covering the national and state NAEP 1998 Reading Assessment (available at the NAEP Web site)
- *Listening to Children Read Aloud, Data from NAEP's Integrated Reading Performance Record (IRPR) at Grade 4*, results from the 1992 IRPR, a special study conducted with a subgroup of fourth graders who participated in the 1992 NAEP Reading Assessment (available in print only)
- *Interviewing Children About their Literacy Experiences, Data from NAEP's Integrated Reading Performance Record (IRPR) at Grade 4*, results from the 1992 IRPR, a special study conducted with a subgroup of fourth graders who participated in the 1992 NAEP Reading Assessment (available in print only)
- *Students Selecting Stories: The Effects of Choice in Reading Assessment*, results from the NAEP Reader Special Survey of the 1994 National Assessment of Educational Progress (available at the NAEP Web site)

For ordering information on these reports, write:

U.S. Department of Education
ED Pubs
P.O. Box 1398
Jessup, MD 20794-1398
or call toll free 1-877-4 ED PUBS (1-877-433-7827)

NAEP reading reports in addition to those listed above are available at http://nces.ed.gov/naep/.

Sample NAEP Questions for Classroom Use

Sample reading questions and student responses from the 1994 reading assessment are now available at http://nces.ed.gov/naep/; look for the sample questions. There are also instructions at this site for copying individual items from the files on the Web into a word processor.

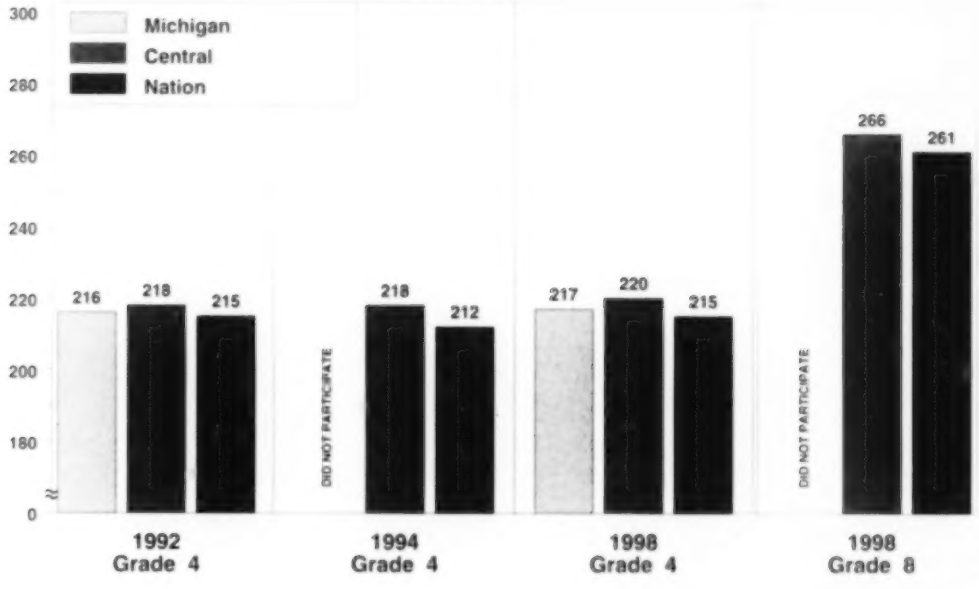
All of the 1998 released items are available now in the *Reading Report Card*. The released items from the 1998 Reading Assessment will appear on the Web in the spring of 1999. Also available will be state-level results for the released items at grades 4 and 8, in a brochure suitable for distribution to schools, *NAEP 1998 Sample Questions and Student Responses*.

Appendix B Figures from Section 1

Figures 1–4 are displayed here in full-page format, with legends and titles but without figure numbers. In each state report on the Web, these figures will appear in color. They may be printed in black-and-white or in color.

THE NATION'S REPORT CARD naep 1998 State Assessment

Average reading scale scores for public school students at grades 4 and 8

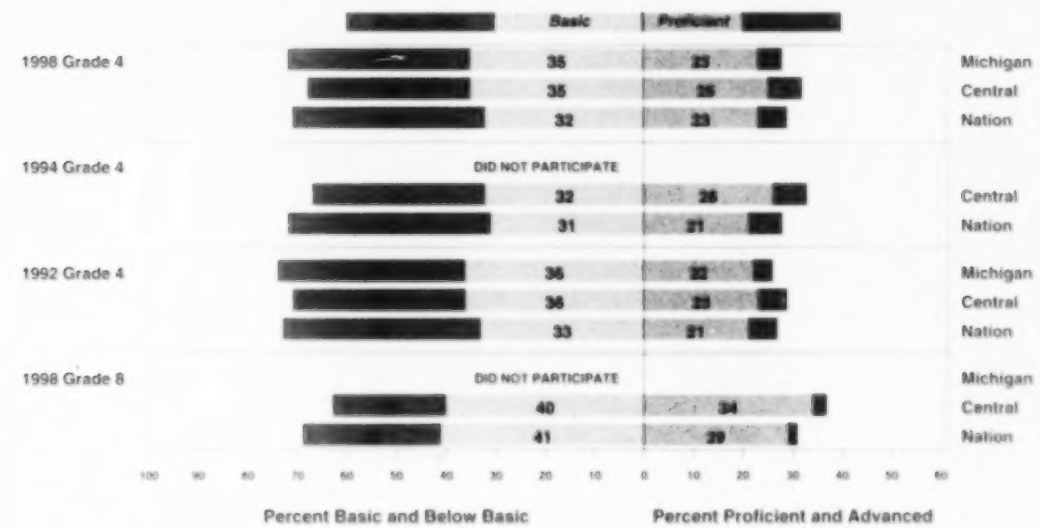


SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1992, 1994, and 1998 Reading Assessments.

THE NATION'S REPORT CARD naep 1998 State Assessment

Reading achievement level results for public school students at grades 4 and 8

The bars below contain estimated percentages of students in each NAEP reading achievement category. Each population of students is aligned at the point where the Proficient category begins, so that they may be compared at Proficient and above.



SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1992, 1994, and 1998 Reading Assessments.

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THE NATION'S REPORT CARD naep 1998 State Assessment

Michigan's 1998 average reading scale score compared to those for other participating jurisdictions for public school students at grade 4

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Reading Assessment.

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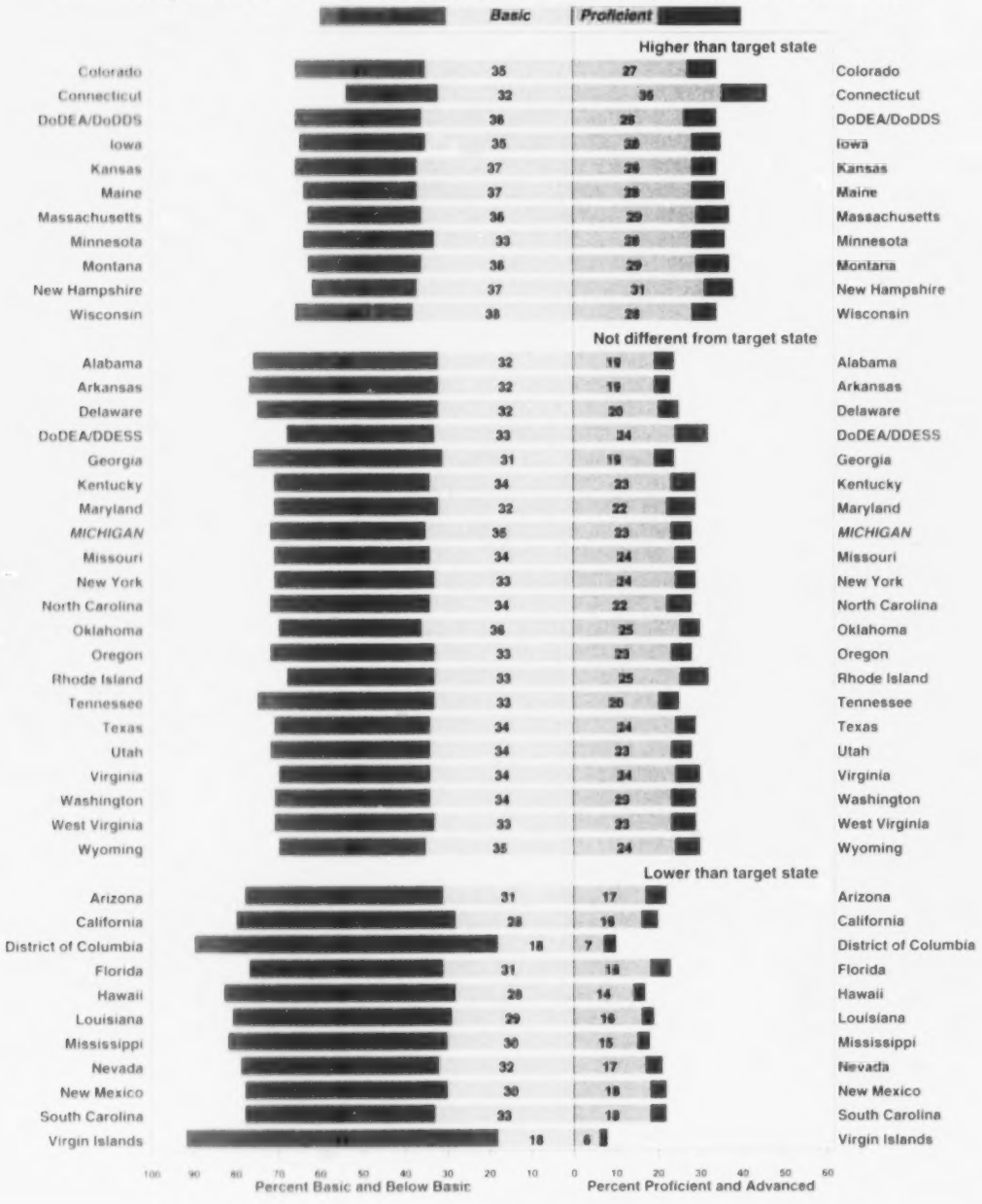
1998 State Assessment

Achievement levels for reading: Comparing the percentage of public school students at or above the Proficient level in Michigan with those in other participating jurisdictions at grade 4 in 1998

The bars below contain estimated percentages of students in each NAEP reading achievement category. Each population of students is aligned at the point where the Proficient category begins, so that they may be compared at Proficient and above.


Basic
Proficient
Higher than target state
Colorado 35 27 Colorado
Connecticut 32 36 Connecticut
DoDEA/DoDDS 36 28 DoDEA/DoDDS
Iowa 35 28 Iowa
Kansas 37 26 Kansas
Maine 37 28 Maine
Massachusetts 36 29 Massachusetts
Minnesota 33 28 Minnesota
Montana 36 29 Montana
New Hampshire 37 31 New Hampshire
Wisconsin 38 28 Wisconsin
Not different from target state
Alabama 32 19 Alabama
Arkansas 32 19 Arkansas
Delaware 32 20 Delaware
DoDEA/DDESS 33 24 DoDEA/DDESS
Georgia 31 19 Georgia
Kentucky 34 23 Kentucky
Maryland 32 22 Maryland
MICHIGAN 35 23 MICHIGAN
Missouri 34 24 Missouri
New York 33 24 New York
North Carolina 34 22 North Carolina
Oklahoma 36 25 Oklahoma
Oregon 33 23 Oregon
Rhode Island 33 25 Rhode Island
Tennessee 33 20 Tennessee
Texas 34 24 Texas
Utah 34 23 Utah
Virginia 34 24 Virginia
Washington 34 23 Washington
West Virginia 33 23 West Virginia
Wyoming 35 24 Wyoming
Lower than target state
Arizona 31 17 Arizona
California 28 16 California
District of Columbia 18 7 District of Columbia
Florida 31 18 Florida
Hawaii 28 14 Hawaii
Louisiana 29 16 Louisiana
Mississippi 30 15 Mississippi
Nevada 32 17 Nevada
New Mexico 30 18 New Mexico
South Carolina 33 18 South Carolina
Virgin Islands 18 6 Virgin Islands
100 90 80 70 60 50 40 30 20 10
Percent Basic and Below Basic
0 10 20 30 40 50 60
Percent Proficient and Advanced

Differences between states and other jurisdictions may be partially explained by other factors not included in this figure.

SOURCE: National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 1998 Reading Assessment.

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Even computer-generated reports require a lot of human input in planning, writing, programming, and integrating graphics. After that, they require further assistance getting onto the Web. This computer-generated report demanded even more human input than its predecessors, for it underwent a transmogrification from a book with over 200 pages to a booklet with just over 50 pages. This transformation was due to requests from the NAEP jurisdictions for results that were easier to disseminate and the response of NCES and NAGB to these needs.

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